

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all previous versions, and listings, of the claims in this application.

Listing of Claims:

1. (Currently Amended) Apparatus for treating a fracture of a bone of a subject, comprising:

an intramedullary (IM) nail adapted to be inserted in a medullary canal of the bone of the subject and comprising a proximal head that defines at least one hole therethrough; and

at least one sleeve insertable into a respective one of the at least one hole, each of the at least one sleeve comprising a locking mechanism which engages a portion of the nail around the respective hole when the sleeve is inserted in the respective hole, the locking mechanism of each of the at least one sleeve being integral with the at least one sleeve and structured and arranged to cooperate with the portion of the nail around the respective one of the at least one hole to prevent rotational and longitudinal movement between the sleeve and the nail when the sleeve is inserted in the respective hole in the nail.

the proximal head being shaped so as to define a female coupling element located on a surface around the hole, and

the locking mechanism comprising a depressible male coupling element, wherein the depressible male coupling element is configured to engage the female coupling element so as to prevent

the rotational and longitudinal movement between the sleeve and the nail.

2. (Previously Presented) Apparatus according to claim 1, further comprising at least one screw, each of the at least one sleeve being arranged to slidably receive a respective one of the at least one screw.

3. (Canceled)

4. (Currently Amended) Apparatus according to claim [[3]] 1, wherein the female coupling element is shaped to define a notch.

5. (Currently Amended) Apparatus according to claim [[3]] 1, wherein the male coupling element comprises a tab.

6. (Currently Amended) Apparatus according to claim [[3]] 1, wherein the depressible male coupling element is adapted to engage the female coupling element when the sleeve is inserted in the hole to a fixed depth and then rotated until the depressible male coupling element engages the female coupling element.

7. (Currently Amended) Apparatus for treating a fracture

of a bone of a subject, comprising:

an intramedullary (IM) nail adapted to be inserted in a medullary canal of the bone of the subject, the IM nail comprising a stem adjacent a first end of the nail and a proximal head having a distal portion including at least one hole for receiving a coupling element and a proximal portion, the distal portion being arranged adjacent the stem and the proximal portion being arranged adjacent a second end of the nail opposite the first end of the nail such that the distal portion of the head is between the proximal portion of the head and the stem, the distal portion having a distal diameter, and the proximal portion having a proximal diameter less than or equal to about 80% of the distal diameter, and

at least one sleeve insertable into a respective one of the at least one hole, each of the at least one sleeve comprising a locking mechanism which engages a portion of the nail around the respective hole when the sleeve is inserted in the respective hole, the locking mechanism of each of the at least one sleeve being integral with the at least one sleeve,

the locking mechanism of each of the at least one sleeve comprising a depressible male coupling element, wherein the depressible male coupling element is configured to engage a respective female coupling element located on a surface around the respective hole so as to prevent the rotational and

longitudinal movement between the at least one sleeve and the nail when the sleeve is inserted in the respective hole in the nail.

8. (Original) Apparatus according to claim 7, wherein the proximal diameter is less than or equal to about 50% of the distal diameter.

9. (Original) Apparatus according to claim 7, wherein the proximal diameter is equal to between about 5 mm and about 10 mm and the distal diameter is equal to between about 11 mm and about 17 mm.

10. (Original) Apparatus according to claim 7, wherein a length of the proximal portion is equal to between about 10% and about 50% of a length of the distal portion.

11-25. (Canceled)

26. (Currently Amended) Apparatus for treating a fracture of a bone of a subject, comprising:

an intramedullary (IM) nail, adapted to be inserted in a medullary canal of the bone of the subject, the IM nail comprising a stem adjacent a first end of the nail and a proximal

head having a distal portion including at least one hole for receiving at least one coupling element and a proximal portion, the distal portion being arranged adjacent the stem and the proximal portion being arranged adjacent a second end of the nail opposite the first end of the nail, the proximal portion being visually discrete from the distal portion, the proximal portion adapted to aid in locating the IM nail, and the distal portion adapted to be coupled to the at least one coupling element, and at least one sleeve insertable into a respective one of the at least one hole, each of the at least one sleeve comprising a locking mechanism which engages a portion of the nail around the respective hole when the sleeve is inserted in the respective hole,

the locking mechanism comprising a depressible male coupling element, wherein the depressible male coupling element is configured to engage a female coupling element located on a surface around the hole so as to prevent the rotational and longitudinal movement between the sleeve and the nail.

27. (Previously Presented) Apparatus according to claim 26, wherein the at least one coupling element is selected from a group consisting of a nail, a screw, a pin, and a sleeve.

28-82. (Canceled)

83. (Previously Presented) Apparatus according to claim 1, wherein the at least one hole comprises a plurality of holes.

84. (Previously Presented) Apparatus according to claim 1, wherein the at least one hole consists of two holes.

85. (Previously Presented) Apparatus according to claim 84, wherein the two holes are both angled relative to a longitudinal axis of the nail.

86. (Currently Amended) Apparatus according to claim 1, wherein the ~~locking mechanism~~ depressible male coupling element comprises a depressible tongue which is part of each of the at least one sleeve.

87. (Previously Presented) Apparatus according to claim 86, wherein the depressible tongue includes a projection on an outer surface which cooperates with the portion of nail around the respective one of the at least one hole when the sleeve is inserted in the respective hole in the nail.

88. (Previously Presented) Apparatus according to claim 1, further comprising at least one anchoring element, each of the at least one sleeve being arranged to slidably receive a

respective one of the at least one anchoring element.

89. (Previously Presented) Apparatus according to claim 1, wherein the nail comprises a stem adjacent a first end of the nail and the proximal head has a distal portion including the at least one hole and a proximal portion, the distal portion being arranged adjacent the stem and the proximal portion being arranged adjacent a second end of the nail opposite the first end of the nail such that the distal portion of the head is between the proximal portion of the head and the stem, the distal portion having a distal diameter, and the proximal portion having a proximal diameter less than or equal to about 80% of the distal diameter.

90. (Previously Presented) Apparatus according to claim 7, wherein the proximal portion of the head is removable from the distal portion of the head.

91. (Previously Presented) Apparatus according to claim 7, wherein the at least one hole in the distal portion comprises a plurality of holes.

92. (Previously Presented) Apparatus according to claim 7, wherein the at least one hole in the distal portion consists

of two holes.

93. (Previously Presented) Apparatus according to claim 92, wherein the two holes are both angled relative to a longitudinal axis of the nail.

94. (Previously Presented) Apparatus according to claim 7, wherein the proximal diameter is between about 25% and about 50% of the distal diameter.

95. (Previously Presented) Apparatus according to claim 7, wherein there is a sudden narrowing between the proximal portion and the distal portion.

96. (Canceled)

97. (Currently Amended) Apparatus for treating a fracture of a bone of a subject, comprising:

an intramedullary (IM) nail insertable into a medullary canal of the bone of the subject and comprising a proximal head that defines at least one hole therethrough;

at least one sleeve insertable into a respective one of said at least one hole; and

locking means arranged on each of said at least one sleeve for locking said sleeve in connection with said nail when said sleeve is inserted in the respective one of said at least one hole in said nail in order to prevent rotational and longitudinal movement between said sleeve and said nail,

said nail defining a female coupling element on a portion defining each of said at least one hole, said locking means including a member projecting from an outer surface of each of said at least one sleeve to engage or cooperate with a respective female coupling element when said sleeve is inserted in the respective one of said at least one hole in said nail,

said locking means comprising a depressible male coupling element formed on each of said at least one sleeve, wherein said depressible male coupling element is configured to engage said female coupling element so as to prevent the rotational and longitudinal movement between said sleeve and said nail.

98. (Previously Presented) Apparatus according to claim 97, wherein said locking means are arranged on a peripheral surface of each of said at least one sleeve.

99. (Previously Presented) Apparatus according to claim 97, wherein each of said at least one sleeve is tubular, further

comprising a screw slidably received in each of said at least one sleeve.

100-102. (Canceled)

103. (Currently Amended) Apparatus according to claim ~~102~~
97, wherein said male coupling element is arranged to ~~flex be depressed~~ to engage with the respective female coupling element after said sleeve is inserted in the respective one of said at least one hole in said nail, whereby once said male coupling element has engaged with said female coupling element, rotational and longitudinal movement between said sleeve and said nail is prevented.

104. (Currently Amended) Apparatus according to claim ~~102~~
97, wherein said male coupling element is arranged to engage said female coupling element when said sleeve is inserted in the respective one of said at least one hole to a fixed depth and then rotated until said male coupling element engages said female coupling element.

105. (Currently Amended) Apparatus according to claim ~~101~~
97, wherein said female coupling element comprises a notch.

106. (Currently Amended) Apparatus according to claim 101
97, wherein said locking means comprises a tab which projects
from the outer surface of said sleeve.

107. (Previously Presented) Apparatus according to claim
97, wherein said at least one hole comprises a plurality of
holes.

108. (Previously Presented) Apparatus according to claim
97, wherein said at least one hole consists of two holes.

109. (Previously Presented) Apparatus according to claim
108, wherein said two holes are both angled relative to a
longitudinal axis of said nail.

110. (Currently Amended) Apparatus according to claim 97,
wherein said ~~locking mechanism~~ male coupling element comprises a
depressible tongue which is part of each of the said at least one
sleeve.

111. (Currently Amended) Apparatus according to claim 110,
wherein said depressible tongue includes a projection on an outer
surface which cooperates with [[a]] the portion of said nail
around a respective one of said at least one hole when said

sleeve is inserted in the respective one of said at least one hole in said nail.

112. (Previously Presented) Apparatus according to claim 97, further comprising at least one anchoring element, each of said at least one sleeve being arranged to slidably receive a respective one of said at least one anchoring element.

113. (Previously Presented) Apparatus according to claim 97, wherein said nail comprises a stem adjacent a first end of said nail and said proximal head has a distal portion including said at least one hole and a proximal portion, said distal portion being arranged adjacent said stem and said proximal portion being arranged adjacent a second end of said nail opposite said first end of said nail such that said distal portion of said head is between said proximal portion of said head and said stem, said distal portion having a distal diameter, and said proximal portion having a proximal diameter less than or equal to about 80% of said distal diameter.

114. (Currently Amended) Apparatus for treating a fracture of a bone of a subject, comprising:

an intramedullary (IM) nail insertable into a medullary canal of the bone of the subject and comprising a proximal head that defines at least one hole therethrough;

at least one sleeve insertable into a respective one of said at least one hole; and

a cooperating locking arrangement having a first part arranged on each of said at least one sleeve and a second part formed in said nail, said locking arrangement locking said sleeve in connection with said nail when said sleeve is inserted in the respective one of said at least one hole in said nail in order to prevent rotational and longitudinal movement between said sleeve and said nail.

said first part of said locking arrangement comprising a
depressible male coupling element, said second part of said
locking arrangement comprising a female coupling element located
on a surface around said at least one hole, wherein said
depressible male coupling element is configured to engage said
female coupling element so as to prevent the rotational and
longitudinal movement between said sleeve and said nail.

115. (Previously Presented) Apparatus according to claim 114, wherein said first part of said locking arrangement is arranged on a peripheral surface of each of said at least one sleeve.

116. (Previously Presented) Apparatus according to claim 114, wherein each of said at least one sleeve is tubular, further comprising a screw slidably received in each of said at least one sleeve.

117. (Previously Presented) Apparatus according to claim 114, wherein said second part comprises a portion of said nail around the respective one of said at least one hole.

118. (Currently Amended) Apparatus according to claim 114, wherein said ~~second part comprises a~~ female coupling element is formed on a portion defining each of said at least one hole, said first part projecting from an outer surface of each of said at least one sleeve to engage with a respective female coupling element when said sleeve is inserted in the respective one of said at least one hole in said nail.

119. (Currently Amended) Apparatus according to claim ~~118~~ 114, wherein said ~~first part comprises~~ male coupling element is a flexible male coupling element formed on each of said at least one sleeve.

120. (Previously Presented) Apparatus according to claim 119, wherein said male coupling element is arranged to flex to

engage with the respective female coupling element after said sleeve is inserted in the respective one of said at least one hole in said nail, whereby once said male coupling element has engaged with said female coupling element, rotational and longitudinal movement between said sleeve and said nail is prevented.

121. (Previously Presented) Apparatus according to claim 119, wherein said male coupling element is arranged to engage said female coupling element when said sleeve is inserted in the respective one of said at least one hole to a fixed depth and then rotated until said male coupling element engages said female coupling element.

122. (Currently Amended) Apparatus according to claim ~~118~~ 114, wherein said female coupling element comprises a notch.

123. (Currently Amended) Apparatus according to claim ~~118~~ 114, wherein said first part comprises a tab which projects from the outer surface of said sleeve.

124. (Currently Amended) Apparatus for treating a fracture of a bone of a subject, comprising:

an intramedullary (IM) nail adapted to be inserted in a medullary canal of the bone of the subject and comprising a proximal head that defines a plurality of holes therethrough; and a plurality of sleeves each insertable into a respective one of said holes, each sleeve comprising a locking mechanism which engages a portion of said nail around said respective hole when said sleeve is inserted in said respective hole, said locking mechanism of each of said sleeves being structured and arranged to cooperate with the portion of said nail around said respective hole to restrict rotational and longitudinal movement between said sleeve and said nail when said sleeve is inserted in said respective hole in said nail.

said locking mechanism comprising a compressible male coupling element, wherein said compressible male coupling element is configured to engage a female coupling element located on a surface around said hole so as to prevent the rotational and longitudinal movement between said sleeve and said nail.

125. (Previously Presented) Apparatus according to claim 124, wherein said locking mechanism of each of said sleeves is integral with said sleeve.

126. (Previously Presented) Apparatus according to claim 124, further comprising an anchoring element, each of said

sleeves being arranged to slidably receive a respective one of said anchoring elements.

127. (Previously Presented) Apparatus according to claim 126, wherein said anchoring elements are screws.

128. (Currently Amended) Apparatus according to claim 124, wherein said proximal head is shaped so as to define [[a]] said female coupling element located on a surface around each of said holes, and wherein ~~said locking mechanism comprises a deppressible male coupling element, configured to engage a respective one of said female coupling elements so as to prevent rotational and longitudinal movement between said sleeve and said nail.~~

129. (Currently Amended) Apparatus according to claim ~~120~~ 124, wherein said female coupling element is shaped to define a notch.

130. (Currently Amended) Apparatus according to claim ~~120~~ 124, wherein said male coupling element comprises a tab.

131. (Currently Amended) Apparatus according to claim ~~120~~ 124, wherein each of said deppressible male coupling elements is

adapted to engage the respective one of said female coupling elements when said sleeve is inserted in said respective hole to a fixed depth and then rotated until said compressible male coupling element engages said female coupling element.

132. (Previously Presented) Apparatus according to claim 124, wherein said plurality of holes consists of two holes.

133. (Previously Presented) Apparatus according to claim 124, wherein said holes are angled relative to a longitudinal axis of said nail.

134-136. (Canceled)

137. (New) Apparatus for treating a fracture of a bone of a subject, comprising:

an intramedullary (IM) nail insertable into a medullary canal of the bone of the subject and comprising a proximal head that defines at least one hole therethrough;

at least one sleeve insertable into a respective one of said at least one hole; and

locking means arranged on each of said at least one sleeve for locking said sleeve in connection with said nail when said sleeve is inserted in the respective one of said at least one

hole in said nail in order to prevent rotational and longitudinal movement between said sleeve and said nail,

 said nail defining a female coupling element on a portion defining each of said at least one hole, said locking means including a member projecting from an outer surface of each of said at least one sleeve to engage with a respective female coupling element when said sleeve is inserted in the respective one of said at least one hole in said nail,

 said locking means comprising a flexible male coupling element formed on each of said at least one sleeve,

 said male coupling element being arranged to engage said female coupling element when said sleeve is inserted in the respective one of said at least one hole to a fixed depth and then rotated until said male coupling element engages said female coupling element.

138. (New) Apparatus for treating a fracture of a bone of a subject, comprising:

 an intramedullary (IM) nail insertable into a medullary canal of the bone of the subject and comprising a proximal head that defines at least one hole therethrough;

 at least one sleeve insertable into a respective one of said at least one hole; and

a cooperating locking arrangement having a first part arranged on each of said at least one sleeve and a second part formed in said nail, said locking arrangement locking said sleeve in connection with said nail when said sleeve is inserted in the respective one of said at least one hole in said nail in order to prevent rotational and longitudinal movement between said sleeve and said nail,

said second part comprising a female coupling element formed on a portion defining each of said at least one hole, said first part projecting from an outer surface of each of said at least one sleeve to engage with a respective female coupling element when said sleeve is inserted in the respective one of said at least one hole in said nail,

said first part comprising a flexible male coupling element formed on each of said at least one sleeve,

said male coupling element being arranged to engage said female coupling element when said sleeve is inserted in the respective one of said at least one hole to a fixed depth and then rotated until said male coupling element engages said female coupling element.

139. (New) Apparatus for treating a fracture of a bone of a subject, comprising:

an intramedullary (IM) nail adapted to be inserted in a medullary canal of the bone of the subject and comprising a proximal head that defines a plurality of holes therethrough; and

a plurality of sleeves each insertable into a respective one of said holes, each sleeve comprising a locking mechanism which engages a portion of said nail around said respective hole when said sleeve is inserted in said respective hole, said locking mechanism of each of said sleeves being structured and arranged to cooperate with the portion of said nail around said respective hole to restrict rotational and longitudinal movement between said sleeve and said nail when said sleeve is inserted in said respective hole in said nail,

said proximal head being shaped so as to define a female coupling element located on a surface around each of said holes, and wherein said locking mechanism comprises a depressible male coupling element, configured to engage a respective one of said female coupling elements so as to prevent rotational and longitudinal movement between said sleeve and said nail,

each of said depressible male coupling elements being adapted to engage the respective one of said female coupling elements when said sleeve is inserted in said respective hole to a fixed depth and then rotated until said depressible male coupling element engages said female coupling element.